

## PATENT COOPERATION TREATY

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## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

|  |  |  |                       |
|--|--|--|-----------------------|
| Applicant's or agent's file reference<br>4715PTWO/AG/a   | <b>FOR FURTHER ACTION</b>                                |  | See Form PCT/IPEA/416 |
| International application No.<br>PCT/EP2004/053666   | International filing date (day/month/year)<br>22.12.2004 | Priority date (day/month/year)<br>23.12.2003 |                       |
| International Patent Classification (IPC) or national classification and IPC<br>INV. E05F1/12 E05D3/06 |  |  |                       |
| Applicant<br>ARTURO SALICE S.P.A. et al.   |  |  |                       |

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

- (*sent to the applicant and to the International Bureau*) a total of 1 sheets, as follows:
  - sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
  - sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
- (*sent to the International Bureau only*) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- Box No. I Basis of the report
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

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|---|---|
| Date of submission of the demand<br><br>20.10.2005  | Date of completion of this report<br><br>04.05.2006                   |
| Name and mailing address of the international preliminary examining authority:<br><br>European Patent Office<br>D-80298 Munich<br>Tel. +49 89 2399 - 0 Tx: 523656 epmu d<br>Fax: +49 89 2399 - 4465 | Authorized officer<br><br>Balice, M<br>Telephone No. +49 89 2399-7925 |



# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/EP2004/053666

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on
  - the international application in the language in which it was filed
  - a translation of the international application into , which is the language of a translation furnished for the purposes of:
    - international search (under Rules 12.3(a) and 23.1(b))
    - publication of the international application (under Rule 12.4(a))
    - international preliminary examination (under Rules 55.2(a) and/or 55.3(a))
2. With regard to the **elements\*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

### Description, Pages

1-5 as originally filed

### Claims, Numbers

1-4 filed with telefax on 20.10.2005

### Drawings, Sheets

1/3-3/3 as originally filed

a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3.  The amendments have resulted in the cancellation of:
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):
4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/053666

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N) Yes: Claims 1-4

No: Claims

Inventive step (IS) Yes: Claims 1-4

No: Claims

Industrial applicability (IA) Yes: Claims 1-4

No: Claims

2. Citations and explanations (Rule 70.7):

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Reference is made to the following document:

D1: US-A-5 373 609 (FERRARI ET AL) 20 December 1994 (1994-12-20)

2. The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document) a furniture hinge comprising a fixing arm (10) for fixing to a piece of furniture (23), a member (11) for fixing to a door (22), a first (13) and a second (14) rocker, forming a four-bar linkage and connecting said fixing arm (10) to said member (11) for fixing to a door so as to enable reciprocal pivoting, an elastic element (21) hinged to a pivoting pin (15) of the first rocker (13) at an end thereof, said elastic element being provided with first (24) and second arms (25) connected by a central portion fitted around said pivoting pin (15), said second arm exerting a reaction on one of the rockers (13,14) and said elastic element (21) being compressed.

The subject-matter of claim 1 differs from this known hinge in that the elastic element generates a pushing force in an opening direction of the door causing one of the two rockers to pivot for a short interval in the direction that generates the door opening movement when the hinge is placed in a position defining the door in the closed position; in the known hinge of D1 the door is subjected to a thrust towards the closed position, when the angle of aperture of the door is small.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

3. The problem to be solved by the present invention may be regarded as to provide a hinge with a spring that exerts an opening moment on the door, when the door is closed, to be used in furniture doors without handles or other gripping devices.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons: the second arm of the compressed elastic element exerts a reaction on the rocker, that

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.  
PCT/EP2004/053666

pushes the door in the opening direction, whereby the spring of the known hinge of D1 pushes the corresponding rocker in a direction of closing the door; the hinge of the prior art solves a different problem, which is keeping the door closed when the angle of aperture is small.

4. Claims 2-4 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

**NEW CLAIMS**

1. Furniture hinge comprising a fixing arm (1) for fixing to a piece of furniture (4), a member (7) for fixing to a door (11), a first (6) and a second (5) rocker, forming a four-bar linkage and connecting said fixing arm (1) to said member (7) for fixing to a door so as to enable reciprocal pivoting, an elastic element (28, 38, 48) hinged to a pivoting pin (12, 14) of the first rocker (6) at an end thereof of said elastic element being provided with first (25, 31, 41) and second arms (27, 27', 27'', 37, 47) connected by a central portion (28, 38, 48) fitted around said pivoting pin characterised in that said second arm exerts a reaction on one of the rockers (5, 6), whereby said elastic element (28, 38, 48) is compressed and a moment is produced that generates a pushing force in an opening direction of the door (11) causing one of the two rockers to pivot for a short interval in the direction that generates the door opening movement when the hinge is placed in a position defining the door in the closed position.
- 15 2. Hinge according to claim 1 wherein the elastic element (28, 38, 48) is hinged to the pin (12) connecting the fixing arm (1) to the first rocker (6) and the first arm (25, 31, 41) of the elastic element (28, 38, 48) exerts an elastic reaction on the fixing arm (1) and the second arm (27, 27', 27'', 37, 47) of the elastic element (28, 38, 48) exerts an elastic reaction on the first rocker (6).
- 20 3. Hinge according to claim 1 wherein the elastic element (28, 38, 48) is hinged to the pin (14) connecting the member (7) for fixing to the door (11) to the first rocker (6) and the first arm (25, 31, 41) of the elastic element (28, 38, 48) exerts an elastic reaction on the second rocker (5) and the second arm (27, 27', 27'', 37, 47) of the elastic element (28, 38, 48) exerts an elastic reaction on the member (7) for fixing to the door (11).
- 25 4. Hinge according to claim 2 or wherein the elastic element (28, 38, 48) exerts the elastic reaction for a short arc only of said reciprocal pivoting defining the first part of the door (11) opening.